

IN THE CLAIMS:

The text of all pending claims (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. When strikethrough cannot easily be perceived, or when five or fewer characters are deleted, ~~[[double brackets]]~~ are used to show the deletion. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims 13, 16, 18, 20, 21, 24, 25, 29, 34 and 35, CANCEL claims 15, 23, 26, 27, 28, 36, and 37 without prejudice or disclaimer, and ADD new claim 38 in accordance with the following:

1. (original) A channel equalizer of a single carrier receiver receiving an input signal, comprising:

- a feed-forward filter removing a pre-ghost of respective symbols of the input signal;
- a feedback filter removing a post-ghost of the respective symbols of the input signal;
- an adder combining the pre-ghost removed symbol with the post-ghost removed symbol;
- a level decision unit determining a level of the symbols added at the adder with reference to predetermined level data, and feeding back the determined level to the feedback filter;
- a trellis decoder performing trellis decoding with respect to a sum of the symbols obtained at the adder;
- an error calculator calculating an error value between the symbols obtained at the adder and the level determined at the level decision unit; and
- a trellis control unit controlling the trellis decoder so that a plurality of decoded symbols output from the trellis decoder are input to the feedback filter based on the error value obtained at the error calculator.

2. (original) The channel equalizer of claim 1, wherein the trellis control unit controls the trellis decoder so that the decoded symbols are input to the feedback filter when a signal to noise ratio (SNR) corresponding to the error value is equal to or more than a predetermined threshold.

3. (original) The channel equalizer of claim 1, wherein the trellis decoder comprises:
a whole decoding depth as an N (N =natural number); and
a whole length of a trace back delay as an $N \times K$ (K =natural number).

4. (original) The channel equalizer of claim 3, wherein the trellis decoder inputs to

the feedback filter the decoded symbols that are output from a plurality of decoding depth states of the whole decoding depth.

5. (original) The channel equalizer of claim 4, wherein the decoded symbols output from the decoding depth states of an n ($n \leq N$, $N = \text{natural number}$) is input to a $1 + (n \times K)\text{th}$ filter tap of the feedback filter, and the decoded symbols output from the decoding depth states are input to respectively corresponding filter taps of the feedback filter.

6. (original) The channel equalizer of claim 1, wherein, with an input of the level determined at the level decision unit, the feedback filter removes the post-ghost from the respective symbols based on the decided level, and with another input of a decoded symbols from the trellis decoder, the feedback filter removes the post-ghost from the respective symbols based on the decoded symbols.

7. (original) A channel equalizing method of a single carrier receiver receiving an input signal, comprising:

- removing a pre-ghost from respective symbols of the input signal using a feed-forward filter;
- removing a post-ghost from respective symbols of the input signal using a feedback filter;
- combining the pre-ghost removed symbols with the post-ghost removed symbols;
- performing a feedback operation of determining a sum of the symbols as a corresponding level with reference to predetermined level data, and inputting the determined level to the feedback filter;
- computing an error between the sum of the symbols and the determined corresponding level based on a predetermined error updated algorithm;
- performing a trellis decoding operation of performing trellis decoding of the symbols using a trellis decoder; and
- controlling the trellis decoder to determine whether the decoded symbols output from the trellis decoder is input to the feedback filter based on the computed error.

8. (original) The channel equalizing method of claim 7, wherein the controlling of the trellis decoder comprises:

inputting the decoded symbols from the trellis decoder into the feedback filter when a signal to noise ratio corresponding to the error value is equal to or more than a predetermined threshold.

9. (original) The channel equalizing method of claim 7, wherein the trellis decoder in the trellis decoding operation comprises:

a whole decoding depth as N (N =natural number) ; and

a whole length of a trace back delay as an $N \times K$ (K =natural number).

10. (original) The channel equalizing method of claim 9, wherein the trellis decoder inputs the decoded symbols output from a plurality of decoding depth states of the whole decoding depth into the feedback filter.

11. (original) The channel equalizing method of claim 10, wherein the decoded symbols output from the decoding depth states of n , which is equal to or smaller than N , is input to a $1 + (n \times K)$ th filter tap of the feedback filter, and the decoded symbols output from the decoding depth states are input to respectively corresponding filter taps of the feedback filter.

12. (original) The equalizing method of claim 10, wherein the feedback filter removes the post-ghost from the respective symbols based on the decided level, and based on an input of the decoded symbols from the trellis decoder, removes the post-ghost from the respective symbols based on the decoded symbols.

13. (currently amended) A single carrier receiver receiving an input signal, comprising:

a recovery unit recovering an original signal from the input signal;

a phase recovery unit recovering a phase distortion of the input signal;

a channel equalizer performing a channel equalization with respect to symbols of the phase-distortion recovered input signal using decoded symbols in a unit of trellis decoding depth, wherein the channel equalizer comprises:

a feed-forward filter removing a pre-ghost of respective symbols of the input signal;

a feedback filter removing a post-ghost of the respective symbols of the input signal;

an adder adding the pre-ghost removed symbols with the post-ghost removed symbols;

a level decision unit determining a level of the symbols added at the adder with reference to predetermined level data, and feeding back the determined level to the feedback filter;

a trellis decoder performing a trellis decoding with respect to a sum of the symbols obtained at the adder;

an error calculator calculating an error value between the symbols obtained at the adder and the determined level determined at the level decision unit; and

a trellis control unit controlling the trellis decoder so that a plurality of decoded symbols output from the trellis decoder are input to the feedback filter based on the error value obtained at the error calculator;

a de-interleaver performing de-interleaving with respect to the channel-equalized input signal from the channel equalizer; and

a reed-solomon demodulator performing reed-solomon decoding with respect to the de-interleaved input signal.

14. (original) The single carrier receiver of claim 13, wherein the recovery unit comprises:

a demodulator converting the input signal into a base bandwidth;

a distortion compensation unit recovering a distortion of at least one of a segment synchronization signal, a field synchronization signal, and a symbol timing of the input signal in the base bandwidth; and

a comb filter removing an NTSC (National Television System Committee) interference signal from the distortion-recovered input signal.

15. (canceled)

16. (currently amended) The single carrier receiver of claim ~~15~~13, wherein the trellis decoder comprises:

a whole decoding depth as N (N =natural number);and

a whole length of a trace back delay as $N \times K$ (K =natural number).

17. (original) The single carrier receiver of claim 16, wherein the trellis decoder inputs the decoded symbols output from a plurality of decoding depth states of the whole decoding depth into the feedback filter.

18. (currently amended) The single carrier receiver of claim ~~15~~13, wherein the trellis control unit controls the trellis decoder to input the decoded symbols output from the trellis decoder into the feedback filter when a signal to noise ratio corresponding to the error is equal to or more than a predetermined threshold.

19. (original) The single carrier receiver of claim 18, wherein the decoded symbols output from the decoding depth states of an n ($n \leq N$, $N = \text{natural number}$) is input to a $1 + (n \times K)th$ filter tap of the feedback filter, and the decoded symbols output from the decoding depth states are input to respectively corresponding filter taps of the feedback filter.

20. (currently amended) The single carrier receiver of claim ~~15~~13, wherein, based on an input of the determined level determined at the level decision unit, the feedback filter removes the post-ghost from the respective symbols based on the determined level, and, based on another input of the decoded symbols from the trellis decoder, the feedback filter removes the post-ghost from the respective symbols based on the decoded symbols.

21. (currently amended) A single carrier receiver receiving an input signal, comprising:

a channel equalizer removing a pre-ghost and a post-ghost of respective symbols of the input signal, and trellis-decoding a sum of the pre- and post-ghosts removed symbols of the input signal based on predetermined level data and the sum of the pre- and post-ghosts removed symbols of the input signal,

wherein the channel equalizer comprises:

a level decision unit determining a level of the symbols based on the predetermined level data, and feeding back the determined level to the feedback filter,

an error calculator calculating an error value between the determined level and the sum of the pre- and post-ghosts removed symbols of the input signal,

a trellis decoder trellis-decoding the sum of the pre- and post-ghosts removed symbols of the input signal based on the error value of the error calculator., and

a controller controlling the trellis decoder to transmit the decoded sum of the pre- and post-ghosts removed symbols of the input signal to the feedback filter.

22. (original) The single carrier receiver of claim 21, wherein the channel equalizer comprises:

a feedback filter removing the post-ghost of the respective symbols of the input signal;

and

a feed-forward filter removing the pre-ghost of respective symbols of the input signal.

23. (canceled)

24. (currently amended) The single carrier receiver of claim ~~23~~21, wherein the level decision unit determines the level of the pre- and post-ghosts removed symbols based on the predetermined level data.

25. (currently amended) The single carrier receiver of claim ~~23~~21, wherein the feedback filter outputs the post-ghost removed symbols based on the determined level.

26. (canceled)

27. (canceled)

28. (canceled)

29. (currently amended) The single carrier receiver of claim-~~28~~21, wherein the feedback filter removes the post-ghost of the symbols of the input signal based on the decoded sum.

30. (original) The single carrier receiver of claim 21, wherein the channel equalizer transmits the decoded sum of the pre- and post-ghosts removed symbols of the input signal to the feedback filter.

31. (original) The single carrier receiver of claim 30, wherein the channel equalizer generates post-ghosts removed symbols of the input signal based on the error value.

32. (original) The single carrier receiver of claim 30, wherein the channel equalizer generates the post- ghosts removed symbols of the input signal based on the decoded sum of the pre- and post-ghosts removed symbols of the input signal.

33. (original) The single carrier receiver of claim 21, wherein the channel equalizer transmits the decoded symbols of the input signal to the feedback filter so that the feedback filter removes the post-ghost of the symbols of the input signal based on the decoded sum.

34. (currently amended) A method of performing a channel equalization with respect to symbols of an input signal in a single carrier receiver, the method comprising:

removing a pre-ghost of respective symbols of the input signal using a feed-forward filter and outputting a signal M; and a post-ghost of respective symbols of the input signal; and

removing a post-ghost of respective symbols of the input signal using a feedback filter and outputting a signal L;

adding the signal M and the signal L and outputting a resultant sum signal Y;

trellis-decoding, by a trellis decoder, a the resultant sum signal Y to output a plurality of trellis-decoded symbols; of the pre- and post-ghosts removed symbols of the input signal based on predetermined level data and the sum of the pre- and post-ghosts removed symbols of the input signal;

determining a level of the resultant sum signal Y to be a nearest one among predetermined levels and providing a signal D of the determined level to the feedback filter and an error calculator;

calculating an error value E as a difference between the resultant sum signal Y and the signal D of the determined level and outputting the error value E to the feed-forward filter, the feedback filter, and a trellis control unit,

wherein, when a SNR corresponding to the error value E is equal to or greater than a predetermined threshold, the trellis decoder inputs the plurality of trellis-decoded symbols to the feedback filter.

35. (currently amended) The method of claim 34, further including, after the calculating of the error value E operation, updating coefficients, by the feed-forward filter and the feedback filter, based on the error value E.

wherein the trellis-decoding of the sum of the pre- and post-ghosts removed symbols of the input signal comprises:

determining a level of the sum based on the predetermined level data; and

feeding back the determined level to the feedback filter.

36. (canceled)

37. (canceled)

38. (new) A method of performing a channel equalization with respect to symbols of an input signal in a single carrier receiver wherein a pre-ghost of respective symbols of the input

signal is removed by a feed-forward filter to output a signal M and a post-ghost of respective symbols of the input signal is removed by a feedback filter to output a signal L, a resultant sum signal Y is formed by summing signals M and L, and the resultant sum signal Y is trellis decoded to provide trellis-decoded symbols, the method comprising:

determining a level of the resultant sum signal Y to be a nearest one among predetermined levels and outputting a signal D of the determined level; and

calculating an error value E as a difference between the resultant sum signal Y and the signal D of the determined level and a SNR corresponding thereto,

wherein, when the SNR corresponding to the error value E is equal to or greater than a predetermined threshold, the plurality of trellis-decoded symbols are input to the feedback filter to enhance post-ghost removal filtering.